

- Difficult arterial U-turns [10]

### IDEAL LOCATION

Bowties should be considered at arterials where high through volumes conflict with moderate to low cross street and left turn volumes. Design locations must be relatively far apart [10].

### Superstreet

Superstreet designs change four-approach intersections into two independent three-approach intersections by requiring cross street through and left turn traffic both to and from the main arterial to use directional crossovers. This allows each direction to have its own signal timing [10].

### *ADVANTAGES*

- Reduced delay for through arterial traffic and for one pair of left turns
- Reduced stops for through arterial traffic
- Near perfect two-way progression at all times with any signal spacing for through arterial traffic
- Fewer threats to crossing pedestrians
- Reduced and separated conflict points [10]

### *DISADVANTAGES*

- Driver and pedestrian confusion
- Increased delay for cross street through traffic and for one pair of left turns
- Increased travel distances for cross street through traffic and for one pair left turns
- Slow two-stage crossing of arterial for pedestrians
- Additional right-of-way along the arterial [10]

### *IDEAL LOCATION*

Consider where high arterial through volumes conflict with moderate to low cross street through volumes. Design suffers from the same restrictions as Median U-turn: arterials with narrow medians [10].

### Jughandle

Jughandles utilize ramps diverging from the right side of the arterial to accommodate all turns from the arterial. Ramps begin prior to the intersection. Left turns from arterial use the ramp, then turn left on the cross street at the ramp terminal, which are stop-controlled for left turns, and yield-controlled for right turns [10].

### *ADVANTAGES*

- Reduced delay for through arterial traffic
- Reduced stops for through arterial traffic
- Easier progression for through arterial traffic
- Narrower right-of-way needed along the arterial